USDA's 1997 Baseline: The Domestic Outlook to 2005

Strong U.S. export growth is the principal impetus for relative prosperity projected for the U.S. crop and livestock sectors from 1997 to 2005. World economic growth and trade liberalization provide increased opportunities for U.S. exports during this period.

In USDA's 1997 baseline, U.S. exports rise from this year's forecast of $56 billion to $80 billion by 2005. Exports of high-value products increase faster than bulk exports and account for a growing share of U.S. farm exports. In particular, meat and horticultural export values rise significantly through 2005.

Strong export growth is also projected for bulk commodities, particularly feed grains and wheat. U.S. bulk commodity exports expand more rapidly than during the 1985-95 period, helping to propel total U.S. farm exports to an average annual growth rate of about 4 percent through 2005. The export share of U.S. farm-product use grows significantly for corn, grows slightly for wheat and soybeans, and drops for rice and cotton, which experience rapidly growing domestic demand in the face of only marginal area gains.

Since the U.S. is the world's leading grain exporter and an important meat exporter, it stands to benefit from projected gains in international grain demand and higher commodity prices. And greater market orientation in the domestic agricultural sector under the new farm legislation puts U.S. farmers in a favorable position to compete in the global marketplace. As a result, the positive international outlook is echoed, for the most part, by the U.S. agricultural sector.

U.S. Demand to Rise For Major Crops

Strong growth in U.S. grain use leads to rising prices and greater acreage planted to most major field crops. Except for rice, exports are the major factor in this growth.

Productive capacity for U.S. crops is projected to rise due to increases in resource and input use and in productivity. Planted area for major crops rises 10-15 million acres above average plantings of the past 5 years. The increased area is drawn into crop production, based on market incentives, from acreage that producers previously chose to idle. For most crops, yields are projected to rise at or near their long-term trends. These gains in part reflect the acquisition of some agricultural land by larger, generally more efficient farms, continuing a long-term trend.

Conservation Reserve Program (CRP) acreage drops temporarily from the recent level of 33 million acres to about 30 million as land enrollment falls short of contract expirations, but then rebounds to over 36 million acres by 2001. However, with the CRP remaining above 30 million acres, the balance between productive capacity and projected demand tightens significantly as the land base is pressured. Most land enrolled in the CRP is in areas traditionally planted to major field crops, thus limiting the response of planted acreage to rising prices and net returns. This, together with strong world demand, pushes grain prices up.

In the near term, food and feed grain prices drop from the abnormal highs of recent months, but the outlook over the longer term is for a slow rise in prices. Big productivity gains occur for U.S. soybeans and other oilseed crops, maintaining a U.S. edge over other major producing countries. Gains in productivity and efficiency lead to lower production costs, leaving the U.S. well positioned to meet the strong growth in demand projected for the oilseed sector.

For U.S. cotton, yield and acreage gains will provide the production needed to meet the strong growth in demand—particularly domestic demand—over the next decade. For cotton to compete successfully with other crops for more acreage, prices will have to follow those of grain and oilseeds. The U.S. specialty crops sectors also thrive, and the U.S. becomes a net exporter of fruits by 2000.

Domestic demand for most crops is projected to grow slightly faster than population. Notably stronger growth in domestic use of rice reflects a greater emphasis on dietary concerns as well as the increasing numbers of Americans of Asian and Latin American origins.

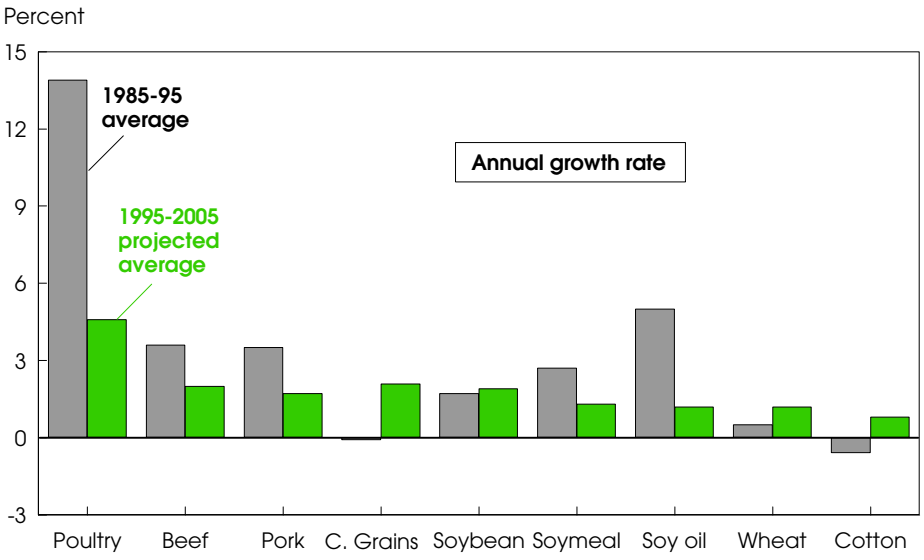
Livestock Stabilizes, Poultry Booms

U.S. livestock production will continue to undergo adjustments over the next few years in response to recently high feed costs, although differences in biological production lags among livestock sectors affect the pace of these adjustments. Nonetheless, the outlook for lower feed prices than in 1995/96, replenishment of forage supplies, continued low inflation, and domestic and export demand strength point to positive producer returns, encouraging increasing red meat and poultry supplies. However, as feed costs accelerate after 2000, gains in meat production slow, particularly red meats.

The projections and discussion presented in this article are drawn from a presentation at USDA's 1997 Agricultural Outlook Forum held in Washington, D.C. on February 24-25, 1997. Long-term numbers were prepared in October through December 1996 and were published in USDA's *Agricultural Baseline Projections to 2005, Reflecting the 1996 Farm Act*, released in February 1997. USDA's 1997 baseline estimates are also fully accessible via the Internet at: **http://www.mannlib.cornell.edu/data-sets/farm/94005**

Agricultural Economy

Global Import Demand for Ag Commodities Continues Growing



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Cattle herds will likely stabilize beyond the year 2000 at about 97 million head, although shifts toward a breeding herd of larger cattle and heavy slaughter weights partially offset the need for expanding cattle inventories to previous levels. Beef production continues to be dominated by fed beef, to satisfy domestic and foreign demand for higher quality beef.

The U.S. pork sector will continue to evolve into a more vertically coordinated industry. Larger, more efficient pork producers will market a greater percentage of the hogs over the next 10 years. Pork production grows slowly from just under 18 billion pounds in 1995 to nearly 20 billion by 2005. However, accelerating feed grain prices beyond 2000 reduce producer returns and curb gains in hog inventories and production. The U.S. becomes an increasingly important net pork exporter over this period.

U.S. poultry production continues to expand as broiler meats gain an increasing share of total meat consumption. Poultry meat will be less expensive than other meats, so consumers can purchase more poultry meat per dollar. Production gains for turkey follow projected growth in the domestic and export market for processed products. Continued competition in the world poultry meat market holds U.S. exports to moderate gains.

The price situation for meats and livestock is similar to that of crops—moderate growth in nominal terms but with real prices dropping. Over the longer term, feed prices will rise at rates similar to the general inflation rate. As a result, livestock producers do not experience any real (inflation-adjusted) increase in feed prices. At the same time, increases in feed efficiency, coupled with other production and marketing efficiency gains, push down real livestock production costs. The net result is that efficiency gains offset real farm-price declines for livestock, benefiting livestock producers.

Record total meat supplies are projected through 2005, although red meat production gains are small. Consumers purchase more meat, but a larger proportion is poultry, as per capita consumption of red meats falls. Declining real meat prices, along with increases in real disposable income, allow consumers to buy more total meat with a smaller proportion of disposable income.

U.S. Farm Income Stabilizes

In light of the commodity-specific highlights, the U.S. farm income outlook is quite optimistic. Net farm income, in nominal terms, falls from recent highs to $36 billion in 1998, then rises through 2005. This implies a steady real farm income outlook—a definite change from recent trends. The agricultural sector increasingly relies on the marketplace for its income, as direct government payments fall through 2002 and represent less than 3 percent of gross cash income beyond 2000.

Both crop and livestock receipts are up, due to larger production and higher prices. However, production expenses also rise, with expenses for nonfarm-origin inputs rising faster than expenses for farm-origin inputs.

Farm asset values increase less rapidly than in the early 1990's, mainly because of slowing gains in agricultural land values. Increases in farm debt are not beyond the ability of farmers to service the debt. Farm lenders have largely recovered from the problems of the 1980's, so the availability of credit will not be a major concern. Debt-to-asset

Exports Spur Growth in Demand for U.S. Agricultural Commodities

Commodity	Annual demand growth 1995* - 2005		Export share of total use	
	Domestic	Exports	1995*	2005
	Percent		*Percent*	
Wheat	0.9	1.5	52	53
Corn	1.5	4.1	21	27
Soybeans	1.3	2.0	34	36
Rice	2.2	-1.9	45	33
Cotton	2.0	0.3	40	35
Beef	-0.2	16.1	6	11
Pork	0.7	9.2	3	7
Poultry	3.5	10.0	10	19

*Represents average of 4-year period 1991-95.
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ratios remain flat at close to 15 percent, well below levels of the mid-1980's. With asset values increasing more than debt, farm equity rises slowly.

After declining from recent high levels, increasing nominal farm income, combined with rising farm equity, means relative stability in the financial condition of the farm sector. However, the sector will be highly competitive, and the trend toward fewer but larger farms continues.

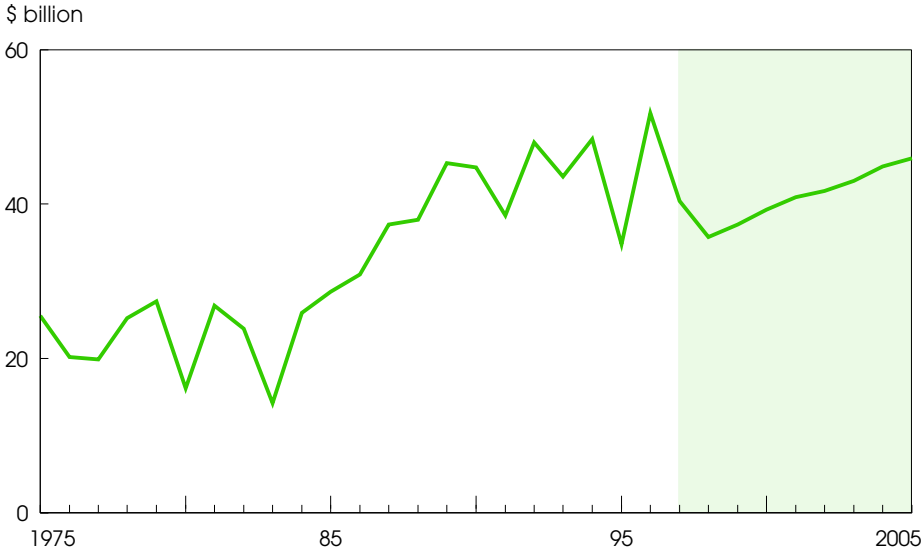
Consumers benefit as food inflation grows more slowly than general inflation (continuing a long-term trend), even though disposable income spent on food is influenced by a continued trend of substantial purchases of food away from home. By 2005, expenditures for meals eaten away from home account for almost half of total food spending.

Behind the Projections

The outlook's general picture of growing international demand and strengthening global prices in the 1997-2005 period has direct implications for the welfare of the whole range of stakeholders in the domestic agricultural sector. Because of the diversity and interdependence of different players in U.S. agriculture, it is rare that an outlook scenario suggests that producers of both crops and livestock, as well as consumers, are well off or better off. Typically, for example, if grain prices are high (a good outlook for grain producers), livestock producers are likely to be hurt. Or if prices received by farmers for livestock products are high, consumers pay higher prices at the retail level.

Tradeoffs across subsectors and market participants are the rule. However, this year's domestic outlook for 1997-2005 reflects the exception to that rule. Farmers—whether crop producers or livestock producers—and consumers appear better off. Four principal factors interact to create this optimistic projection.

Nominal Net Farm Income Grows Steadily After 1998



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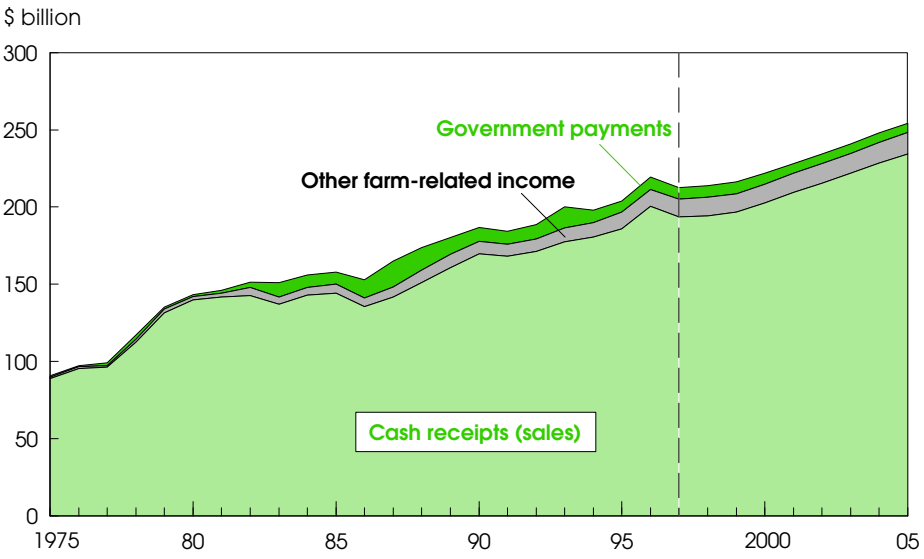
Government Payments Decline as Share of Farm Revenue



Gross farm income. 1997 forecast; 1998-2005 projected.

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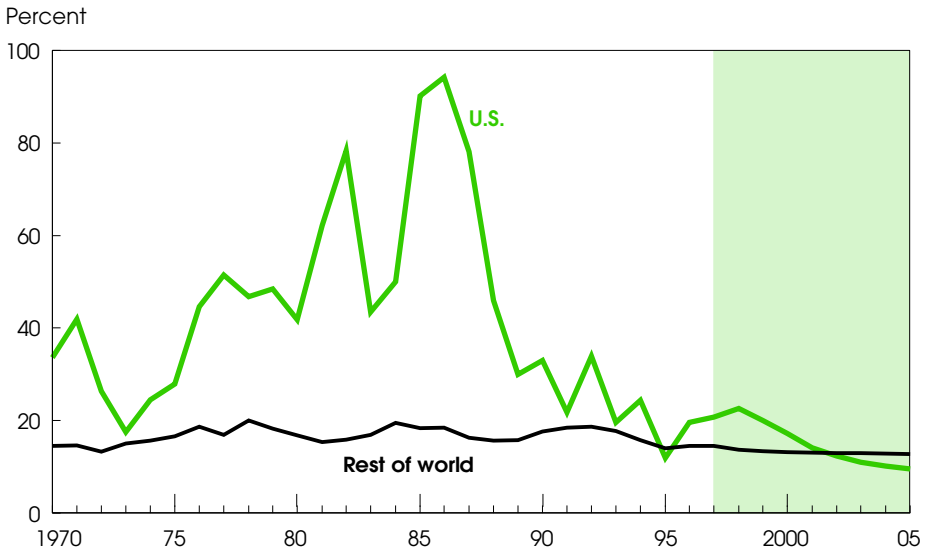
First, strong growth in export demand is the catalyst for the rapid increases in commodity use and the steady increase innominal commodity prices. Reduced trade barriers under the GATT agreement, combined with strong global economic growth, particularly in developing countries, are behind the rise in world agricultural trade and U.S. crop exports.

*Second, domestic policy and policy assumption*s support a positive agricultural outlook. Planting flexibility introduced by the 1996 Farm Act facilitates the

Agricultural Economy

U.S. Grain Stocks-to-Use Ratio Shrinks



1997 forecast; 1998-2005 projected.

Economic Research Service, USDA

market's response to changing demand for U.S. agricultural commodities. In addition, USDA's baseline operates under the assumption that production flexibility contract payments (program payments) to farmers continue beyond the expiration of current legislation in 2002. This helps to explain why crop producers are better off, in the aggregate, despite lower real prices.

Third, trade agreements and unilateral trade policy reform in other countries allow U.S. farmers to better realize competitive gains from their comparative advantage in many agricultural products, while reinforcing the advantages of freedom to respond to market signals.

Fourth, structural change in U.S. agriculture continues, via consolidation and concentration, and provides economies of scale that increase efficiency above and beyond technological change. In addition, increases in vertical coordination of several activities in the food production and marketing chain help to explain why consumers will face lower real food prices.

What Are the Uncertainties?

In creating a baseline scenario that builds on recent trends and policy actions, USDA is not asserting that the "everyone wins" outcome will truly come to pass. The baseline is not a forecast. Any number of events might occur that could greatly alter the actual outcome. For example, the assumption that production flexibility contract payments continue is not a forecast that they will. Since future policy is unknown, the baseline assumes no change, as a simplification. By keeping assumptions clear and straightforward, baseline users can easily adjust the projections to fit different versions of the underlying assumptions, which is particularly useful in areas of strong uncertainty.

Weather, as always, is the wild card. But several other factors play an important role in determining the direction and outcome of the U.S. agricultural sector into the next century. For example, government policy can take almost as many wild turns as weather. No change is assumed in current U.S. agricultural policy beyond 2002.

Unilateral foreign policy change is another big source of policy uncertainty. For example, the European Union (EU) could establish larger cropland set-aside rates than was assumed. Such a scenario would likely reduce EU grain exports and as a result, support international grain prices and improve U.S. competitiveness in international grain markets.

Multilateral or regional trade agreements could determine future directions for agriculture. Whether this would bode well or poorly for various U.S. stakeholders depends on the nature of any agreement's development. For example, EU enlargement *could* significantly decrease export demand for some U.S. agricultural commodities and food products. But accession of a few major countries, such as China, to the World Trade Organization could expand U.S. market access by increasing the number of countries playing by the same international trade "rules" as the U.S.

Strong income growth in developing economies is a major reason for the optimistic scenario outlined by the international baseline. Weaker growth would mean lower global trade, lower U.S. exports, and lower agricultural commodity prices.

Supply response, both domestic and international, determines the agricultural sector's performance in responding to market signals. Yield assumptions do not explicitly account for changes that could occur as a result of biotechnological breakthroughs. In addition, potential productivity changes that may result from the 1996 Farm Act are excluded, principally because a good deal of uncertainty remains about how domestic supply is going to respond in the absence of acreage reduction programs and deficiency payments. There is even greater uncertainty about the nature of foreign supply response. Experience in the recent past suggests that foreign supply can be highly responsive to price signals and can adjust very rapidly.

Energy prices and their stability over time are a perennial concern. However, there is no empirical basis for assuming a new energy crisis or anything other than a trend extension for energy prices. If energy price instability occurs, it could have a big impact on the outlook.

The prospect of declining *U.S. and global grain stocks* has generated considerable uncertainty, particularly since enactment of the 1996 Farm Act. Following several years of adjustments from recent unusually tight market conditions and high prices for many crops, long-term trends in supply and demand balances imply tightening stocks-to-use ratios and strengthening nominal prices for crops, especially beyond 2000. In particular, U.S. and global grain stocks-to-use ratios tighten relative to historical standards, as budgetary pressures and a continued commitment to market forces encourage governments to refrain from financing large grain stocks.

What this means for the outlook with respect to price volatility and food security remains uncertain. On the one hand, a range of factors—e.g., globalization of markets, trade and agricultural policy liberalization, and advances in telecommunications that allow electronic trade and link foreign and domestic futures markets—suggests that stocks have become less important to price stability. On the other hand, price levels are inversely related to stock levels, and as stocks decline, higher prices might make food security harder to assure in low-income countries.

In addition to the above uncertainties, a variety of issues that are currently central to the domestic agricultural economy—e.g., income risk management and sustainability—are not addressed in the baseline. The 1996 Farm Act's removal of traditional income safety-net mechanisms effectively transfers income variability risk from the government to farmers. Although baseline projections assume no shocks, normal variations in supply and demand will occur in the future. U.S. farmers will have to make strategic use of risk management alternatives to buffer a portion of this potentially greater income volatility.

Some farmers will expand their use of futures and options markets, possibly using new instruments such as yield contracts. Many producers continue to use crop insurance for yield protection and may expand coverage using revenue insurance now available in some areas.

Other alternatives to manage risk include diversification of production, contracting in advance for the future sale of the commodity, integrated ownership, and involvement with more value-added processing beyond the farm gate. The baseline does not address which risk management mechanisms farmers will adopt or what their adoption will mean for production or average income levels.

The economic, ecological, and social conditions underlying the baseline analysis, or implied by the resultant outlook, may or may not continue. This consideration introduces more uncertainty about whether pathways suggested by the current outlook can be maintained over time.

In summary, the baseline is a "conditional scenario analysis," designed for comparative purposes. Whether or not an individual agrees with the underlying assumptions, the baseline serves as a clear reference tool from which alternate outcomes may be derived by changing those assumptions.

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USDA's Agricultural Baseline: The Assumptions

USDA's 10-year baseline projections cover agricultural commodities, agricultural trade, and aggregate indicators such as farm income and food prices. The projections in the current report, *Agricultural Baseline Projections to 2005, Reflecting the 1996 Farm Act,* were completed in December 1996 and reflect a composite of model results and judgmental analysis of the agricultural sector through the year 2005. The projections reflect major agricultural policy decisions made through mid-November 1996 and include short-term projections from the November 1996 *World Agricultural Supply and Demand Estimates.*

The baseline projections incorporate provisions of the 1996 Farm Act and assume the new law is extended through the end of the baseline in 2005. These projections provide a starting point for discussion of alternative farm policies. The categories of critical long-term assumptions in the baseline include: U.S. and international macroeconomic conditions; U.S. agricultural and trade policies; funding for U.S. agricultural export programs; foreign economic, agricultural, and trade policies; growth rates of U.S. and foreign agricultural productivity; and normal (average) weather.

Changes in any of these assumptions can significantly alter the projections, and actual conditions that emerge will alter the outcomes. Among the more critical assumptions are those involving agricultural policy and macroeconomic conditions.

The Conservation Reserve Program (CRP), reauthorized in the 1996 Farm Act, sets maximum CRP area at 36.4 million acres. The new law permits the Secretary of Agriculture to re-enroll current land at contract expiration and to enroll new land to replace acreage leaving the CRP through expired contracts or early termination.

Over 20 million acres of CRP contracts expire in 1997. Enrollments in 1997 are assumed to keep the CRP from falling below 30 million acres. Enrollments in subsequent years are assumed to gradually increase the CRP to over 36 million acres by 2001.

The baseline assumes full compliance with all bilateral and multilateral agreements affecting agriculture and agricultural trade. Projections assume full compliance with the internal support, market access, and export subsidy provisions of the Uruguay Round GATT Agreement. The baseline assumes no accession to the World Trade Organization by the Newly Independent States (NIS) of the former Soviet Union, the Baltics, China, or Taiwan; no enlargement of the European Union (EU) beyond its current 15 members; and no expansion of the North American Free Trade Agreement.

Agricultural and trade policies in individual foreign countries are assumed to continue to evolve along their current paths.

The baseline assumes that no new bilateral or multilateral agreements occur during the 1997-2005 period. Although a number of such agreements could emerge, given the World Trade Organization (WTO) mini-round scheduled for 1999 and potential agreements on WTO accession and EU-15 enlargement, the provisions and timing of potential agreements are uncertain.

Annual quantity and expenditure levels for the Export Enhancement Program (EEP) are assumed to be in compliance with GATT reductions, which require that by 2000, subsidized exports be reduced by 21 percent in volume and by 36 percent in budget outlays from 1986-90 levels. However, the 1996 Farm Act reduced total EEP funding during fiscal years 1996-99 from the maximum levels permitted under the GATT agreement. The 1997 Agriculture Appropriations Act further lowered the fiscal 1997 EEP level.

The 1996 Farm Act authorizes P.L. 480-Title I agreements with private entities in addition to foreign governments and broadens the range of commodities available for P.L. 480 programs. Total P.L. 480 program levels are assumed constant in the baseline for fiscal 1998 and later years. Program levels for other trade promotion and credit programs, including the Market Access Program and the GSM-102 and GSM-103 credit guarantee programs, are assumed constant in the baseline.

Domestic macroeconomic assumptions include deficit reduction that balances the Federal budget by 2002. This results in lower interest rates, higher productivity, and stronger growth in Gross Domestic Product. Baseline global economic growth averages about 3 percent annually over the next decade, well above growth during the first half of the 1990's. Macroeconomic growth in developed countries averages about 2.5 percent through 2005 as these economies rebound from growth slowdowns in the mid-1990's.

Market reforms lead to projected economic growth for the NIS and Baltics, and for the countries in Central and Eastern Europe, following years of economic decline during the transition from centrally planned economies. Aggregate growth for developing countries over the next 10 years is projected to average about 5.5 percent, somewhat faster than over the past decade.

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